WHAT IS CLAIMED IS:

1. A vehicular braking control apparatus comprising:

a master cylinder that generates a hydraulic pressure corresponding to a brake operating force;

a first communication passageway that connects the master cylinder and a wheel cylinder of a braking apparatus in communication;

a first open-close valve disposed on the first communication passageway;

a stroke simulator that is connected to the first communication passageway between the first open-close valve and the master cylinder and that provides a reaction force corresponding to the brake operating force;

a pressurization source that generates a predetermined hydraulic pressure;

a hydraulic pressure adjusting portion that connects the pressurization source and the first communication passageway between the first open-close valve and the wheel cylinder and adjusts the hydraulic pressure applied to the wheel cylinder;

a hydraulic pressure sensor that detects the hydraulic pressure on the first communication passageway between the first open-close valve and the master cylinder; and

a control portion that, while a brake is not operated, closes the first open-close valve, and controls the hydraulic pressure adjusting portion so as to increase the hydraulic pressure on a wheel cylinder side of the first communication passageway while maintaining a closed state of the first open-close valve, and then opens the first open-close valve, and determines whether there is an abnormality of the stroke simulator based on a change in outputs of the hydraulic pressure sensor before and after the first open-close valve is opened.

2. The vehicular braking control apparatus according to claim 1, wherein the control portion determines whether there is an abnormality of the stroke simulator based on a maximum value of pressure measured by the hydraulic pressure sensor when the first open-close valve is opened, and a maximum rising gradient of the measured pressure.

3. The vehicular braking control apparatus according to claim 1,

wherein the stroke simulator comprises a second open-close valve and a stroke simulator body, and

wherein the stroke simulator body is connected to the first communication passageway

via the second open-close valve, and

wherein the control portion performs an abnormality detection regarding the second open-close valve in an abnormality detection regarding the stroke simulator.

4. The vehicular braking control apparatus according to claim 3, wherein the control portion determines whether there is a valve closing abnormality of the second open-close valve by opening the first open-close valve while controlling the second open-close valve to a closed state.

5. The vehicular braking control apparatus according to claim 3, wherein the control portion determines whether there is an abnormality of the stroke simulator body by opening the first open-close valve while controlling the second open-close valve to an open state.

6. The vehicular braking control apparatus according to claim 3, wherein the control portion determines whether there is an abnormality of the stroke simulator by comparing a first output of the hydraulic pressure sensor that occurs when the first open-close valve is opened while the second open-close valve is controlled to the open state and a second output of the hydraulic pressure sensor that occurs when the first open-close valve is opened while the second open-close valve is controlled to the closed state.

7. The vehicular braking control apparatus according to claim 6,

wherein the first output includes at least one of a first maximum value of a first pressure measured by the hydraulic pressure sensor when the first open-close valve is opened, and a first maximum rising gradient of the measured first pressure, and

wherein the second output includes at least one of a second maximum value of a second pressure measured by the hydraulic pressure sensor when the first open-close valve is opened, and a second maximum rising gradient of the measured second pressure.

8. The vehicular braking control apparatus according to claim 7, wherein the control portion determines whether there is an abnormality of the second open-close valve based on a first difference between the second maximum value and the first maximum value, and a second difference between the second maximum rising gradient and the first maximum rising gradient.

9. The vehicular braking control apparatus according to claim 8, wherein if the first difference is greater than a first predetermined value and the second difference is greater than a second predetermined value, the control portion determines that the second open-close valve is normal.

10. The vehicular braking control apparatus according to claim 8, wherein if the second maximum value is less than a first threshold value and the second maximum rising gradient is less than a second threshold value, the control portion determines that the second open-close valve is incapable of being opened.

11. The vehicular braking control apparatus according to claim 8, wherein if the second maximum value is at least the first threshold value and the second maximum rising gradient is at least the second threshold value, the control portion determines that the second open-close valve is incapable of being closed.

12. The vehicular braking control apparatus according to claim 7, wherein the control portion determines whether there is an abnormality of the stroke simulator body based on the first maximum rising gradient and the first maximum value.

13. The vehicular braking control apparatus according to claim 12, wherein if the first maximum value is within a first range and the first maximum rising gradient is within a second range, the control portion determines that the stroke simulator body is normal.

14. The vehicular braking control apparatus according to claim 12, wherein if the first maximum value is greater than an upper limit value of the first range and the first maximum rising gradient is greater than an upper limit value of the second range, the control portion determines that the stroke simulator body is in a blocked state.

15. The vehicular braking control apparatus according to claim 12, wherein if the first maximum value is less than a lower limit value of the first range and the first maximum rising gradient is less than a lower limit value of the second range, the control portion determines that the stroke simulator body has a leak of a hydraulic oil for applying hydraulic pressure to the wheel cylinder.

16. The vehicular braking control apparatus according to claim 1,

wherein the hydraulic pressure adjusting portion includes a second communication passageway that connects in communication the pressurization source and the first communication passageway between the first open-close valve and the wheel cylinder; and a third open-close valve disposed on the second communication passageway, and

wherein the control portion increases the hydraulic pressure on a wheel cylinder side of the first communication passageway to a target value by actuating the pressurization source and keeping the third open-close valve open, and then closes the third open-close valve.

17. The vehicular braking control apparatus according to claim 1,

wherein the hydraulic pressure adjusting portion includes a second communication passageway that connects in communication the pressurization source and the first communication passageway between the first open-close valve and the wheel cylinder; a third open-close valve disposed on the second communication passageway: a third communication passageway that connects in communication a master cylinder and the second communication passageway downstream of the third open-close valve; and a fourth open-close valve disposed on the third communication passageway; and

wherein the control portion keeps the fourth open-close valve closed during execution of a process for detecting an abnormality of the stroke simulator.

18. The vehicular braking control apparatus according to claim 1, further comprising a notification device that notifies a driver of the vehicle that an abnormality of the stroke simulator has been detected.

19. A method for detecting an abnormality of a braking apparatus that has a stroke simulator that provides a reaction force corresponding to a brake operating force,

wherein a first open-close valve is disposed on a communication passageway that connects in communication a wheel cylinder of the braking apparatus and a master cylinder that generates a hydraulic pressure corresponding to the brake operating force, and

wherein the stroke simulator is connected to the communication passageway between the first open-close valve and the master cylinder,

the method comprising:

increasing a hydraulic pressure on a wheel cylinder side of the communication

passageway while the first open-close valve is closed while a brake is not operated;

opening the first open-close valve after increasing the hydraulic pressure on the wheel cylinder side;

measuring a hydraulic pressure in a communication passageway between the first open-close valve and the stroke simulator which occur before and after the first open-close valve is opened; and

determining whether there is an abnormality of the stroke simulator based on a change in the measured hydraulic pressure.